

## IN THE DRAWINGS

Please replace sheets 1-3 with amended sheets 1-3 containing amended FIG's. 1-3 which have reference numerals corrected therein and which are now labeled PRIOR ART as requested by the Examiner. Also replace sheet 5 with amended sheet 5 containing amended FIG. 5 wherein the inlets 42 and 42A have been corrected. Finally, replace sheets 8 and 9 with amended sheets 8 and 9 wherein reference numerals have been corrected and the skewed flame envelope is shown and numbered. Note that the skewed flame envelope was shown in the original FIG. 8 and FIG. 9 drawing figures (copy enclosed) but inadvertently omitted from the corrected drawings requested by the Initial Examination branch.

## REMARKS

Claims 1-17 have been amended or cancelled and claims 18 and 19 stand withdrawn.

In response to the Examiner's objections to the drawings and specification, Applicant has amended the specification and drawings as set forth above. Applicants submit that the amendments to the specification and drawings overcome the Examiner's rejection to the specification and drawings. Further applicant submits that these amendments do not contain new matter.

The Examiner has made objections to the claims and Applicant submits that the claims as now amended overcome and obviate these objections.

In response to the Examiner's rejection of the claims under 35 U.S.C. §112 and in particular of claim 3, Applicant submits that the cancellation of claim 3 obviates this rejection.

The Examiner will note that Applicant amended the claims to place them in more appropriate U.S. form and to define now even more clearly Applicant's novel and unobvious structure in the reactor claims and Applicant's novel and unobvious process steps in the process claims.

The Examiner's rejection of claims 1, 3-12, 16 and 17 under 35 U.S.C. §102(b) for being anticipated by the Vanderveen U.S. Patent No. 4,371,750, as this rejection may be attempted to be applied to the amended claims, is respectfully traversed.

In support of this traverse, it is to be noted that Applicant has amended claims 1 and 11 to call for inputting feedstock, air and combustion gas axially into the reactor and combustion gas and air through two separate tangential inlets. Further, applicant inputs air and combustion gas concentrically into the reactor. The claims further call for mechanisms for controlling the velocities and quantities of injected combustion gases and air at each inlet separately whereby potassium is substantially reduced due to the separate control of injected reactants and whereby a vortex strength is controlled by controlling the tangential flow at each separate tangential inlet.

Process claim 11 has been amended in a similar manner to call for the introduction of feedstock along the center of a reactor. The introduction of

combustion gases axially and tangentially into the reactor through three separate inlets one axially and two tangentially, and separately controlling the quantities and the velocity of the combustion gases allows one to control a vortex strength and to control tangential flow of the reactor to change the quality of the produced carbon black produced.

This structure and process steps are not at all disclosed by Vanderveen which introduces feedstock oil and air axially, but not combustion gas (fuel).

The Examiner's rejection of claims 1, 3-10 under 35 U.S.C. §102(b) for being anticipated by the Cheng U.S. Patent No 4,729,885, as this rejection may be attempted to be applied to the amended claims, is respectfully traversed.

In support of this traverse it is noted that like Vanderveen, Cheng does not disclose Applicant's reactor structure or Applicant's process steps. Further while Cheng introduces fast air and slow air axially and a feedstock oil axially, he does not introduce a combustion gas axially.

Note further that Cheng provides a tangential air inlet 28 a tangential fuel inlet 30 but does not teach a pair of tangential inlets for fuel and gas as called for by Applicant in claims 1 and 11.

The Examiner's rejection of claims 14 and 15 under 35 U.S.C. §102(b) for being anticipated by or in the alternative under 35 U.S.C. §103(a) for being obvious over Vanderveen (4,341,750) as this rejection may be attempted to be applied to the amended claims, is respectfully traversed.

In support of this traverse, it is noted that the rejected claim call for specific velocities that are not disclosed or suggested by Vanderveen. The Examiner contends that the claim ranges would be met by one of ordinary skill in the art by optimizing the injection velocities. However, it has long been held that rejections must be solidly based on evidence. See *Ex parte Leavel*, 212 U.S.P.2763, where Mr. Willamowsky speaking for the Patent and Trademark Board of Appeals stated:

"The legal conclusion of obviousness must be bottom on a solid evidentiary base."

Applicant submits that the Examiner has not submitted a solid evidenciary a solid evidenutiary base for his rejection.

The Examiner's rejection of claims 11, 14 and 17 under 35 U.S.C. §103(a) for being unpatentable over the Cheng U.S. Patent No. 4,729,885, as this rejection may be attempted to be applied to the amended claims, is respectfully traversed. Again Cheng does not provide the arrangement of axial and tangential inlets for introducing combustion gas and air and one inlet for axial introduction of feedstock (oil) as called for in Applicant's amended claims 1 and 11.

The Examiner's rejection of claim 2 and claims 12 and 13 for being unpatentable over Vanderveen or Cheng in view of Rollins et al. U.S. Patent No. 5,264,119 or in view of Smith et al. U.S. Patent Publication No. 2004/0071626 as these rejections may be attempted to be applied to the amended claims, is respectfully traversed.

Again in support of this traverse, the Cheng and Vanderveen references do not disclose or suggest the arrangement of feedstock inlet and air inlets and combustion gas inlets as called for in claims 1 and 11 or the additional features set forth in the dependent claims 12 and 13, claim 2 having been cancelled.

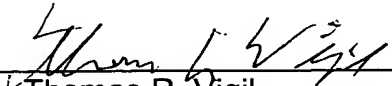
Likewise, Smith et al. while disclosing various inlets does not disclose the axial and tangential gas and air inlets as called for in claims 1 and 11 or the concentric arrangement or these inlets as called for in claims 5 and 6 and 25 and 26...

The Examiner's rejection based on the Rollins et al. U.S. Patent No. 5,264,119 is not understood since contrary to what the Examiner says, Rollins does not teach a carbon black reactor with axial and tangential injection. Rather the copy of this patent obtained by Applicant's attorney is directed to a filter container for being positioned, installed and maintained within a limited space, namely, on a boat. It has nothing to do with a carbon reactor.

In summary, Applicant submits that the amended claims patentably distinguish Applicant's reactor and process over the teachings of the references cited and that amended claims as well as the specification and

drawings are now in condition for allowance. An early and favorable action to that end is requested.

Respectfully submitted,  
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